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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GARY WAYNE BAGNALL and MARK H. ROSE

Appeal 2009-013429
Application 10/759,585
Technology Center 3600

Before STEVEN D.A. MCCARTHY, MICHAEL W. O'NEILL, and
FRED A. SILVERBERG, *Administrative Patent Judges*.

O'NEILL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Gary Wayne Bagnall and Mark H. Rose (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-16 and 18-23, as follows:

claims 2 and 13 are rejected under 35 U.S.C. § 102(b) as anticipated by Beaton (U.S. Patent No. 5,274,949, issued Jan. 4, 1994),¹

claims 3, 7, 10, and 20-23 are rejected under 35 U.S.C. § 103(a) as unpatentable over Beaton; and

claims 1, 4, 5, 6, 8, 9, 11, 12, 14-16, 18, and 19 are rejected under 35 U.S.C. § 103(a) as unpatentable over Beaton and Flynn (U.S. Patent No. 5,363,589, issued Nov. 15, 1994).

Appellants cancelled claim 17. We have jurisdiction under 35 U.S.C. § 6(b).
We REVERSE.

The Invention

The claims on appeal relate to an apparatus for capturing live insects including an upper section, an enclosed lower section, a funnel, and a light source. The upper section includes a top cover and side walls. The side walls contain plural openings large enough to permit insects to enter. The funnel is located between the upper section and the enclosed lower section such that the funnel's wide opening is adjacent to the upper section and the funnel tapers from the wide opening to a narrow opening within the lower section. The light source is housed within the upper section.

Claims 1, 2, 7, 10, 13, and 20, reproduced below in pertinent part, and with emphasis added, are representative of the subject matter on appeal.

¹ The Examiner's Answer lists the grounds of rejection on page 3, but the substance of the rejections is not provided. Therefore, we refer to the Examiner's Non-Final Office Action mailed January 30, 2006 (i.e., Non-Final) for the substance of the rejections and to the Examiner's Answer (i.e., Ans.) for the Examiner's responses to the Appeal Brief's arguments.

1. An apparatus for capturing live insects comprising:

. . . ; and

(e) *a removable funnel insert disposed within the funnel, restricting the narrow opening of the funnel to a smaller size.*

2. An apparatus for capturing live insects comprising:

. . . ,

wherein the side walls of the upper section have an inner surface that is reflective.

7. An apparatus for capturing live insects comprising:

. . . ; and

(d) *an ultraviolet light source housed within the upper section.*

10. An apparatus for capturing live insects comprising:

. . . ,

wherein the upper section has an outer surface that is substantially entirely dark.

13. An apparatus for capturing live insects comprising:

. . . ; and

(e) *a cover that attaches to the enclosed lower section when the enclosed lower section is removed from the upper section.*

20. An apparatus for capturing live insects comprising:

. . . ,

wherein the openings cover approximately 30-40% of the total area that would be provided if the side walls were completely closed.

OPINION

Issues

(1) Whether the inner surface of the side walls of Beaton's upper section are reflective.

(2) Whether Beaton's disc 27 having opening 27' meets the claim limitation of being "a cover that attaches to the enclosed lower section when the enclosed lower section is removed from the upper section."

(3) Whether it would have been obvious to a person of ordinary skill in the art to modify Beaton "to employ an old and well known ultraviolet light source for the known insect attracting properties" as concluded by the Examiner.

(4) Whether it would have been obvious to a person of ordinary skill in the art to modify Beaton "to provide a dark color on the outside of the upper section" for the purpose of providing a contrast with the clear of the lower portion to attract insects as concluded by the Examiner.

(5) Whether it would have been an obvious design choice to a person of ordinary skill in the art to modify Beaton's openings in the upper section to cover approximately 30-40% of the total area of the side walls as concluded by the Examiner.

(6) Whether it would have been obvious to one of ordinary skill in the art to modify Beaton by the teachings of Flynn to have a removable funnel insert disposed in the funnel and to restrict the narrow opening of the funnel to a smaller size as concluded by the Examiner.

Analysis

Issue (1)

Appellants contend that Beaton fails to disclose the feature of the upper section having side walls with an inner surface that is reflective. App. Br. 7. In response to the Examiner's argument that Beaton's side walls are reflective simply because they are inherently capable of reflecting some amount of light, Appellants argue that while the inner surface of Beaton's side walls must reflect some amount of light as every physical surface must, there is absolutely no indication in Beaton that such reflection is more than *de minimis* so that the inner surface of Beaton's side walls cannot be considered to be reflective. App. Br. 7-8.

The Examiner alleges that Beaton anticipates claim 2. Non-Final 3. With respect to claim 2's limitation of "wherein the side walls of the upper section have an inner surface that is reflective," the Examiner posits that the side walls of Beaton's upper section (cylindrical, clear plastic sleeve 21) are inherently somewhat reflective because "part of the light incident on the surface is reflected and the rest of the light is transmitted." *Id.* The Examiner also posits that "even with a transparent surface as disclosed by Beaton, some of the light will be reflected." *Id.*

We agree with Appellants that Beaton does not anticipate claim 2. The Examiner's evidence and reasoning is insufficient to show that the inner surface of Beaton's clear plastic sleeve 21 is inherently reflective to the level that a person having ordinary skill in the art would understand in order to satisfy the claimed limitation when read in light of the Specification.

In view of the foregoing, we do not sustain the Examiner's rejection of claim 2 under 35 U.S.C. § 102(b) as anticipated by Beaton.

Issue (2)

Appellants contend that Beaton does not anticipate claim 13 because there is no indication that Beaton's cover or clear plastic disc 27 attaches to the lower section or collection jar 24 when the collection jar 24 is removed from the upper section or cylindrical, clear plastic sleeve 21. App. Br. 9. Indeed, Appellants point out that Beaton's cover or clear plastic disc 27 is illustrated in Figure 3 as attaching to the upper section or sleeve 21, not the lower section or collection jar 24. *Id.* Appellants note that nothing in Beaton would suggest rearranging the position of the cover or clear plastic disc 27 from the top of the upper section or sleeve 21 to the top of the lower section or collection jar 24. *Id.* Appellants argue that Beaton's disc 27 has an opening 27' for the purpose of allowing fluorescent tube 29 to extend into the upper section or sleeve 21 and thus, even if the disc 27 were moved to the top of the lower section or collection jar 24, the opening 27' would make the disc 27 ineffective as a cover to prevent insects from escaping the collection jar 24 as suggested by the Examiner. App. Br. 10.

The Examiner posits that Beaton anticipates claim 13 because "Beaton shows a cover 27 that attaches to the enclosed lower section when the enclosed lower section is removed from the upper section." Non-Final 3. In the Response to Arguments section of the Examiner's Answer, the Examiner alleges that the cover or clear plastic disc 27 is capable of performing the intended use of attaching the enclosed lower section when the enclosed lower section is removed from the upper section. Ans. 3. Further, in response to Appellants' argument that the clear plastic disc 27 has a hole 27' therein so that it cannot act as a cover, the Examiner alleges

that “[t]he hole in the cover would preclude insects from escaping if they were larger than the opening in the disc.” *Id.*

We agree with Appellants that Beaton does not anticipate claim 13. Since the clear plastic disc 27 does not have any attachment structure, such as threads, etc., it does not appear that the disc 27 would be capable of attaching to the collection jar 24 when the collection jar 24 is removed from the top of the upper section or cylindrical, clear plastic sleeve 21.

In view of the foregoing, we do not sustain the Examiner’s rejection of claim 13 under 35 U.S.C. § 102(b) as anticipated by Beaton.

Issue (3)

Appellants contend that claim 7 is not obvious in view of Beaton because Beaton does not disclose or suggest an ultraviolet light source. App. Br. 11. Appellants also contend that while ultraviolet light sources are known, there is nothing in Beaton that would have suggested incorporating an ultraviolet light therein. *Id.* Appellants point out that there is nothing in Beaton to support the Examiner’s statement that an ultraviolet light source has insect attracting wavelengths or to support the replacement of the fluorescent light source of Beaton with an ultraviolet light source. *Id.*

The Examiner posits that Beaton discloses the invention of claim 7 substantially as claimed, except that Beaton fails to disclose using an ultraviolet light source. Non-Final 4. The Examiner concludes that “it would have been obvious to employ an old and well known ultraviolet light source for the known insect attracting properties.” *Id.* In response to Appellants’ argument that there is no suggestion to modify Beaton by an ultraviolet light source, the Examiner alleges that the teaching, suggestions,

or motivation for the Examiner's proposed modification is from the knowledge generally available to one of ordinary skill in the art. Ans. 4.

We agree with Appellants that claim 7 is not obvious under 35 U.S.C. § 103(a) over Beaton. We find that the Examiner has failed to set forth a prima facie case of obviousness. In order to establish a prima facie case of obviousness, an examiner must undertake the factual inquiries listed in *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In addition, the examiner must articulate some "reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir 2006). This reasoning must show that "there was an apparent reason to combine the known elements in the fashion claimed." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007). In the present case, the Examiner has failed to articulate a sufficient reasoning with some rational underpinning to support the legal conclusion of obviousness because the Examiner's reasoning does not indicate that there was an apparent reason to replace the fluorescent light source of Beaton with a known ultraviolet light source.

In view of the foregoing, we do not sustain the Examiner's rejection of claim 7 under 35 U.S.C. § 103(a) as unpatentable over Beaton.

Issue (4)

Appellants contend that claim 10 is not unpatentable over Beaton because Beaton fails to disclose or suggest an upper section having an outer surface that is substantially entirely dark. App. Br. 12. Appellants assert that the Examiner acknowledges that Beaton does not disclose this feature of claim 10, but the Examiner alleges that it would have been obvious to modify Beaton to have this feature so that insects would be attracted by the

contrast between the dark outer surface of the upper section and the clear of the lower portion. *Id.* Appellants note that the Examiner's motivation is not found anywhere in Beaton. *Id.* Appellants contend that the Examiner's motivation is merely hindsight based upon the Specification. *Id.*

The Examiner lists claim 10 in the grounds of rejection as being unpatentable under 35 U.S.C. § 103(a) over Beaton, but does not specifically address claim 10. Non-Final 4. In response to Appellants' hindsight argument, the Examiner alleges that the rejection takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and as such, is not an improper hindsight reconstruction.² Ans. 4.

We agree with Appellants that claim 10 is not unpatentable under 35 U.S.C. § 103(a) over Beaton. The Examiner has not set forth a *prima facie* case of obviousness because the Examiner's rejection fails to satisfy the initial burden of production to adequately explain the shortcomings of Beaton so that Appellants are properly notified and able to respond. *See In re Jung*, No. 2010-1019, slip op. at 9 (Fed. Cir. Mar. 28, 2011) (citing *Hyatt v. Dudas*, 492 F.3d 1365, 1369 (Fed. Cir. 2007)). Indeed, the Examiner's rejection (see page 4 of the Non-Final Office Action mailed January 30, 2006) does not even address the subject matter of claim 10, the differences between the subject matter of claim 10 and the disclosure of Beaton, and why a person of ordinary skill in the art would want to modify Beaton to arrive at the invention recited in claim 10. Thus, the Examiner has clearly failed to meet the procedural burden and the rejection cannot stand.

² The Examiner refers to *In re McLaughlin*, 443 F.2d 1392 (CCPA 1971) to support that the modification of Beaton does not rely on hindsight.

In view of the foregoing, we do not sustain the Examiner's rejection of claim 10 under 35 U.S.C. § 103(a) as unpatentable over Beaton.

Issue (5)

Appellants contend that claim 20 is not unpatentable under 35 U.S.C. § 103(a) over Beaton because Beaton does not disclose or suggest openings in the side walls of an upper section covering approximately 30-40% of the total area that would be provided if the side walls were completely closed. App. Br. 13-14. In response to the Examiner's statement that the amount of open area in the side walls is a matter of design choice to be determined through routine experimentation since no stated problem is solved, Appellants assert that the Examiner has not provided any justification for his statement and there is no suggestion in Beaton that one should experiment with the size of the openings to obtain better results and thus, there is no motivation to engage in such experimentation. App. Br. 14. Appellants contend that approximately 30-40% openings in the side wall "has been found to provide the greatest efficiency in capturing insects." *Id.*

The Examiner posits that Beaton discloses the invention substantially as claimed in claim 20, except that Beaton fails to explicitly disclose that the openings cover about 30-40% of the total area of the side walls without openings. Non-Final 4. The Examiner concludes that "the amount of area enclosed by the openings is a matter of design choice to be determined through routine experimentation since no stated problem is solved." *Id.* In response to Appellants' arguments that there is no suggestion in Beaton to experiment with the percentage of open area of the side walls, the Examiner alleges that "routine experimentation is known to one of ordinary skill in the art to optimize the operation of the trap such as sizes and colors to attract

different insects and insects of different sizes” and “[h]ence, one skilled in the art would be lead to engage in routine experimentation to find the optimum size of the trap, the optimum size of the openings of the trap and the optimum colors for the trap.” Ans. 4-5.

Design choice applies when old elements in the prior art perform the same function as the now claimed structures. See *In re Kuhle*, 526 F.2d 553, 555 (CCPA 1975) (use of claimed feature solves no stated problem and presents no unexpected result and “would be an obvious matter of design choice within the skill of the art”). However, when the claimed structure performs differently from the prior art a finding of obvious design choice is precluded. *In re Gal*, 980 F.2d 717, 719 (Fed. Cir. 1992) (finding of obvious design choice precluded when claimed structure and the function it performs are different from the prior art). See *In re Chu*, 66 F.3d 292, 298-99 (Fed. Cir. 1995) (“design choice” is appropriate where the applicant fails to set forth any reasons why the differences between the claimed invention and the prior art would result in a different function).

However, only result-effective variables can be optimized. In other words, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272

(CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

We agree with Appellants that claim 20 is not obvious under 35 U.S.C. § 103(a) over Beaton. Here, the claimed structure of 30-40% openings solves Appellants' stated problem of optimizing the percentage of openings to provide the greatest efficiency in capturing insects by striking an appropriate balance between attracting insects into the upper section in the first place and ensuring that the insects do not subsequently escape from the upper section once inside.

In addition, the claimed structure performs differently from the prior art of Beaton. Beaton uses a bright, luminous object, such as the fluorescent tube 29, to attract flying insects to the device. Once the insects are inside the sleeve 21, the clear plastic of the sleeve 21 and the illumination combine to diminish the visual seeing of the outline of the openings 22. Thus, together the clear plastic of the sleeve 21 and the illumination make it difficult for the flying insects to find their way out of the sleeve 21. Beaton also uses the inwardly tapering edges 22' of the openings 22 to prevent the insects from finding their way out of the sleeve 21. In contrast, the present invention uses an optimal percentage of open-to-closed area, i.e., approximately 30-40% of the total area that would be provided if the side walls were completely closed, to permit the greatest number of insects into the sleeve 21 while at the same time preventing the greatest number of insects from escaping the sleeve 21.

The Examiner cites to *Aller* for the rule that the discovery of an optimum value of a variable in a known process is normally obvious. However, our reviewing court has set forth exceptions to this rule, e.g., in

cases in which the variable to be optimized was not recognized to be a result-effective variable. *Antonie* at 620. In the present case, Beaton did not recognize that the percentage of openings in the side wall of the device was result effective, i.e., important in optimizing insect intake to outflow. Neither has the Examiner provided evidence or technical reasoning which shows that one of ordinary skill in the art would have recognized the percentage of openings to be result effective independently of the disclosure of Beaton. Without the recognition in the prior art that the parameter was a result effective variable, the finding of obvious design choice is precluded.

Thus, it was inappropriate here for the Examiner to rely on design choice for two reasons. First, because the claimed feature of 30-40% openings did solve a stated problem and second, because the Beaton prior art did not recognize that the percentage of openings in the side wall of the live insect trap was a result effective variable.

In view of the foregoing, we do not sustain the Examiner's rejection of claims 20-22 under 35 U.S.C. § 103(a) as unpatentable over Beaton.

Issue (6)

Appellants contend that Flynn fails to cure the deficiency of Beaton because at column 3, lines 33-38, Flynn describes elements 30 and 32 as different portions of the same passageway 12. App. Br. 17. Appellants also contend that nothing in Flynn indicates that upper portion 30 and lower portion 32 are different funnels or constitute a removable funnel insert disposed within another funnel. *Id.* To the contrary, Appellants assert that the above-referenced passage of Beaton particularly discloses that upper and lower conical portions 30, 32 are "united together at the juncture 34." Reply Br. 4.

The Examiner posits that Beaton discloses the invention substantially as claimed in claim 1, except that Beaton fails to explicitly disclose a removable funnel insert disposed in the funnel to restrict the size of the opening. Non-Final 4. The Examiner posits that Flynn's Figure 2 shows an insect trap having a funnel 32 and funnel insert 30. *Id.* The Examiner concludes that "it would have been obvious to provide Beaton with a funnel insert as shown by Flynn to restrict the size of the opening to preclude the escape of flies or other insects from the trap." *Id.* In response to Appellants' argument that nothing in Flynn indicates that the upper portion 30 and lower portion 32 are different funnels, the Examiner alleges that because Figure 1 illustrates upper portion 30 as a screen and lower portion 322 as a solid, they must be different elements. Ans. 5. The Examiner also posits that because Figure 2 illustrates that the upper portion 30 and lower portion 32 are at substantially different vertical angles (i.e., about 10 to 20 degrees for the upper portion 30 and 25 to 50 degrees for the lower portion 35 according to column 3, lines 44-47), they must be different elements. *Id.*

We agree with Appellants that claim 1 is not obvious under 35 U.S.C. § 103(a) over Beaton and Flynn. As pointed out by Appellants, Flynn specifically states, at column 3, lines 33-37, that the upper portion 30 and the lower portion 32 are united at juncture 34. If the funnel insert or lower portion 30 and funnel or lower portion 32 are united, the funnel insert or lower portion 30 is not "removable" and thus, does not satisfy claim 1's language of "a removable funnel insert."

In view of the foregoing, we do not sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 103(a) as unpatentable over Beaton and Flynn.

CONCLUSIONS

The inner surface of the side walls of Beaton's upper section are not reflective.

Beaton's disc 27 having opening 27' does not meet the claim limitation of being "a cover that attaches to the enclosed lower section when the enclosed lower section is removed from the upper section."

It would not have been obvious to a person of ordinary skill in the art to modify Beaton "to employ an old and well known ultraviolet light source for the known insect attracting properties" given the Examiner's findings and analysis.

It would not have been obvious to a person of ordinary skill in the art to modify Beaton "to provide a dark color on the outside of the upper section" for the purpose of providing a contrast with the clear of the lower portion to attract insects given the Examiner's findings and analysis..

It would not have been an obvious design choice to a person of ordinary skill in the art to modify Beaton's openings in the upper section to cover approximately 30-40% of the total area of the side walls given the Examiner's findings and analysis.

It would not have been obvious to one of ordinary skill in the art to modify Beaton by the teachings of Flynn to have a removable funnel insert disposed in the funnel and to restrict the narrow opening of the funnel to a smaller size given the Examiner's findings and analysis..

DECISION

We reverse the Examiner's rejections of: claims 2 and 13 under 35 U.S.C. § 102(b) as anticipated by Beaton; claims 3, 7, 10, and 20-23 under

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35 U.S.C. § 103(a) as unpatentable over Beaton; and claims 1, 4, 5, 6, 8, 9, 11, 12, 14-16, 18, and 19 under 35 U.S.C. § 103(a) as unpatentable over Beaton and Flynn.

REVERSED

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